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ABSTRACT

Relationships need to be built between the military training system and vocational education. Vocational education, or specialized skill training as the military terms it, provides the skills and knowledge needed in specific military occupations. It has two parts--initial training and progression training. A process called Instructional Systems Development ensures that training is consistent with job requirements. Because of the time required in the process, shortcuts have often been taken to speed up the process and mistakes in the development of some training systems have been made. Corrective action has two forms: lengthening of formal school training and more classroom instruction at or near the job site. Other trends in training include development and use of simulators and simulation technology and experimentation with computer technology and video technologies. One way to broaden the military's partnership with vocational education is through cooperation between the Department of Defense (DOD) and the Department of Education. The DOD has provided training packages to education for conversion to high school curricula for vocational and technical schools. There is interest in vocational education assistance in recruitment, military training, and training for civilians for defense-related industries. The DOD also needs information about the capacity of industries to gear up for defense production. (Questions and answers are appended.) (YLB)

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Occasional Paper No. 86

THE ROLE OF EDUCATION IN NATIONAL DEFENSE

by
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PREFACE

National defense has taken on a renewed prominence in our society in recent years. This increased emphasis has implications for vocational education to train workers for industrial preparedness. Additionally, relationships need to be built between the military training system and vocational education. Speaking here on this topic is Mr. Alvin Tucker, who is responsible for policy guidance and program review of all training and education of military personnel and military units.

Mr. Tucker, a member of the Senior Executive Service, is Director of Training and Education in the Office of the Deputy Assistant Secretary of Defense (Military Personnel and Force Management), who in turn reports to the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics). Mr. Tucker has served in this position since January 1979.

Mr. Tucker served as an enlisted man in the Army from 1958 to 1961, graduating from the Army Language School as a Russian linguist. Subsequently, he attended the University of Maryland, graduating in 1965 with a degree in accounting.

He began his career as a civil servant in 1965 with the Army Audit Agency, and later transferred to the Defense Audit Service as a staff auditor. In this capacity he analyzed and audited a wide variety of Defense activities. From 1972 until he assumed his present position, he was employed as a budget analyst in the Office of the Assistant Secretary of Defense (Comptroller), specializing in review of Operations and Maintenance accounts.

Mr. Tucker is a Certified Public Accountant, a Certified Internal Auditor, and a member of the American Institute of Certified Public Accountants. He attended the Federal Executive Institute and is a graduate of the Federal Executive Development Program.

It is with great pleasure that the National Center for Research in Vocational Education and The Ohio State University have the opportunity to share the presentation of Mr. Alvin Tucker entitled "The Role of Vocational Education in National Defense."

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

THE ROLE OF VOCATIONAL EDUCATION IN NATIONAL DEFENSE

It is always a pleasure to speak to people involved in education, because the U.S. Department of Defense has long been partners with the civilian academic community. We are partners in many areas—in research and development, in postgraduate education for military officers and civilian employees, in voluntary off-duty education programs that span the globe, in ROTC and Junior ROTC, in basic skills education, in English and foreign language training, and in continuing education for professionals. We share a deep concern for the future of our nation's youth, for our country's productivity, and for the full development of our human resources. The National Center for Research in Vocational Education is another manifestation of this partnership. The National Center assists the Department of Defense by disseminating military training curricula to interested educators in the civilian sector.

The National Center for Human Resources at The Ohio State University also plays a vital role in linking defense with the U.S. Department of Labor through the National Longitudinal Survey. This survey has provided invaluable insights into American society. Its most recent contribution has been to document and characterize the educational attainments of the current youth population. While most of the press coverage on these recent findings highlighted the disparity in educational attainments between whites and blacks, the actual purpose of the survey was to determine how the educational attainments of young male and female military recruits compare to those of the current youth population. From that perspective the results of the survey were gratifying, because they showed that new enlistees were above the national average. So, through this partnership we were able to defend American soldiers against the doubts raised in many quarters about their abilities.

My purpose today is to discuss ways in which we might broaden that partnership in the area of vocational education. But first, I want to tell you about my office and its responsibilities, introduce you to some military jargon, describe the size of our training establishment, and explain some of the recent trends in military training.

My office, the Directorate for Training and Education, is responsible for broad policy and budget overview of military training and education programs. We are not charged with the responsibility for training the civilian employees of the Department of Defense (DOD) or for determining the training needs of American industry in support of either defense contracts or in support of mobilization of the nation in the event of a military emergency. There are other offices within the Office of the Secretary of Defense that have those two functions. My office does not develop training concepts and training curriculum, either. These jobs are done by the military services at their respective training commands or at the military schools directly responsible for specific types of training. My office deals mainly in policy directives, budgets, budgetary justifications, special studies for the Secretary and Congress, and in a limited number of contracts, investigation of areas where DOD has a special or specific concern related to the training and education of military personnel.

Before I discuss vocational education, I must tell you that in DOD, like most professions, we have our own terminology. Our term for vocational education is specialized skill training. Of

course, this term includes more than the traditional concept of vocational education because it also encompasses training in advanced combat skills that do not have a civilian counterpart in vocational schools. Since all of my data are aggregated in terms of specialized skill training, and since I cannot identify the data for the more familiar concept of vocational training, I ask you to accept my terminology for the remainder of this discussion.

Specialized skill training is intended to provide people with the skills and knowledge needed in specific military occupations, such as tank driver, medical corpsman, and administrative clerk. It is quite different from recruit training, which is essentially a process of indoctrinating young men and women into the military through instruction in general military skills, military discipline, physical conditioning, and the building of self-confidence and pride.

Specialized skill training has two parts, initial training and progression training. Initial training is given to most recruits right after basic training. The goal of most of our initial training is to develop knowledgeable apprentices who can go to their units and complete the training process on the job. Progression training is usually given to career military people after their first enlistment, and is designed either to upgrade their skills or to prepare them for supervisory responsibilities in their military occupations.

It is important to understand that military schools do not attempt to produce journeymen workers. The reason is simple. The military, unlike most civilian employees, must bear the entire cost of caring for, feeding, and paying people in training. This is a very high cost, as I will show you a little later, and the military services are anxious to get people into productive assignments as soon as possible, consistent with job requirements.

The military tries to ensure that training is consistent with job requirements through a process called Instructional Systems Development (ISD). The ISD process is designed to identify the critical job task that must be learned, the place where the task can best be learned (in the school, in the unit, or on the job), and the method of instruction. ISD also requires a continual feedback system to verify that the decisions made on critical tasks, training locations, and instructional methodology remain valid. As you might suspect, the ISD process is time-consuming, requiring (in some cases) up to five years for a full cycle. This has often caused the military services to take shortcuts to speed up the process. To some extent, these shortcuts may have caused mistakes, and the Department is now reevaluating much school training and on-the-job training. Nevertheless, DOD is firmly committed to ISD as a basis for developing training systems.

The size of our training establishment for specialized skill training is quite large, which is understandable, considering that the nation has over two million men and women in its active armed forces and needs to recruit and train over three hundred fifty thousand people a year just to maintain the current force levels. Add to this the ninety thousand or more new Reservists and National Guardsmen required each year, and you will understand why the Department expects to have an average of one hundred twenty-four thousand people in specialized skill training at any given time during the current fiscal year. Of these, seventy-eight thousand will be in initial skill training, twenty-nine thousand will be in progression training, and the remaining seventeen thousand will be learning functional skills, such as survival training, airborne and ranger training, and shipboard fire fighting.

All of this training will require forty-seven thousand military and seven thousand civilian employees to conduct it at eighty locations in the United States. The total direct cost of the training will be $2.4 billion, which will include student pay and allowances but exclude the overhead cost of operating and maintaining the military bases where the training will be done.

This large training establishment is run by independent training commands in each of the services. In the Army, it is the Training and Doctrine Command in Norfolk, Virginia; in the Air Force, it is the Air Force Training Command in San Antonio, Texas; and in the Navy, it is the Headquarters of the Chief of Naval Training and Education in Pensacola, Florida. These training commands are collectively staffed by almost four thousand people. Overall this year, the Department will spend $10.5 billion for all kinds of training and education, not including the cost of on-the-job training or team training in units.

Having given you this very broad view of the size and cost of the military training establishment, I will next discuss specific trends in training that I feel point the way to future developments.

As I already mentioned, the Department may have made mistakes in the development of some training systems. Corrective action is underway, however, in the form of two distinct trends. One is a lengthening of formal school training in both the Army and the Air Force. On the average, the Army has added one week to training in combat skills and the Air Force plans to add an average of two weeks to most technical training courses. The second trend is toward more classroom instruction at or near the job site. This trend has been driven by the fact that military supervisors often lack the time and training backgrounds to provide well-rounded training programs for newly arrived apprentices. To provide this additional instruction, the military services are using special training detachments and pierside training vans, as well as setting up formal schools within larger military units.

Another trend in training is the military's continuing leadership in the development and use of simulators and simulation technology. Beginning in 1975, DOD greatly expanded its procurement of aircraft simulators for use in flight training. The Department is now embarked on a major effort to acquire simulators for maintenance training. For instance, the Air Force has a simulated engine for the F-14 aircraft that allows students to fix malfunctions that could not be duplicated on a real engine without great risk to the equipment itself. The Army has set up a range at the National Training Center at Ft. Erwin in California that permits simulated ground combat. The range uses laser beams in place of bullets, and allows combatants to register hits and near misses against aggressive forces. This range signals a revolution, in fact a whole new era, in ground combat training. Finally, there is also a great deal of experimentation with computer technology and video technologies and just as these new developments are changing the ways of education and entertainment in schools and homes, they are expected to affect future military training and education.

One area in military training that is shrinking, due to the DOD success of recruiting more capable people, is remedial education. While the Army still has many such programs in existence, the number of people who require this help has dropped from 5 percent to 2 percent of incoming recruits, and we hope to see it go still lower.

There are two other programs not strictly related to skill training, but that I want to mention because I think educators should know about them. The first is the Reserve Officers' Training Corps (ROTC). This program is on many campuses, and I am happy to report that it is strong and vibrant once again. In fact, Congress has recently authorized 10,000 more ROTC scholarships to be phased in over the next few years, which will bring the total to approximately 29,500 ROTC scholarships available. The second program is repayment of student loans made under either the National Direct Student Loan Program or the Guaranteed Student Loan Program. The National Guard and the Reserve forces sponsor these programs to let students continue their education while participating in the Guard or Reserve. In return for the students' services, the Guard and Reserve repay part of their loan each year.

The cumulative effect of these trends is that the military system is being swiftly changed by the same technological revolution that swept through industry in the last two decades. This revolution has brought quantum leaps in the capabilities of new weapon systems. The overall trend should actually quicken in the next two decades. One likely result will be considerably more retraining during a person's military career. This situation is already a fact of life in the Air Force and the Navy, where new equipment is constantly being introduced. It will soon be a reality in the Army, which is in the midst of a vast modernization of combat equipment to replace weapon systems that are based on 1950s technology.

This technological revolution has raised questions about the relationship between technological complexities and human capabilities. The question is usually stated, "Are we developing equipment that is beyond the capability of people in the military to operate and maintain?" Unfortunately, there are some examples where this seems to be the case. When this has happened, a common reaction has been to call for even less complexity—or for more capable people. I find this reaction strange, since the same kind of problem in industry does not cause industry to discard the latest technological breakthrough, nor to depreciate the abilities of customers by insisting on smarter users. Instead, industry works hard to make the new technology what is called "user-friendly." In other words, the new products are designed to be usable by the vast majority of people without overwhelming them with complex operational procedures or creating a maintenance nightmare for them. I can assure you that this is also the goal of DOD, and I expect to see the Department make progress in this area in the coming years.

Having looked at the trends in specialized skill training, let us return to the question of how we can broaden our partnership in the area of vocational education. One way might be through the U.S. Department of Education. In the past, the communications between DOD and the Department of Education on matters of mutual concern have not been as effective as desired. Under the new administration, the Secretary of Education, Terrell Bell, has taken the initiative to improve the communication and cooperation of the two agencies. Secretary Bell wrote to Secretary of Defense Casper Weinberger suggesting that the vocational education network be considered as a resource for addressing the technical labor shortage. As a result, the two agencies have been meeting and exploring ways in which this cooperation can take place. These meetings have been going on since last September.

We have also been talking to people in the office of Robert Worthington, the Assistant Secretary for Vocational and Adult Education. For some time, as many of you are aware, the DOD has provided training packages to education for conversion to appropriate high school curricula for vocational and technical schools. The National Center for Research in Vocational Education has played a vital role in that activity. We have also recently discussed with Dr. Gene Bottoms, Executive Director of the American Vocational Association (AVA), ways in which vocational education might assist in recruitment, military training, and the training for civilians for defense-related industries.

DOD plans to continue these discussions, and we feel they hold promise for meeting some of the national defense training needs. It is possible that the National Center could add some useful ideas of its own for our consideration. Another avenue for increased cooperation may be through studies of the national industrial base required for a defense buildup or for full mobilization. DOD believes that the national industrial base is a national resource, rather than one that is strictly defense-related. We feel a deep sense of responsibility, however, for the health of a substantial part of that industrial base, and we fully recognize that it has a key role in the planning and maintenance of DOD programs. There are some who believe that defense cutbacks and worsening economic conditions during the past decade have caused a deterioration of America's industrial base. Therefore, it has become more important for us to obtain current

information about the capacity of our industries to gear up for defense production and to know whether there exists sufficiently trained workers to handle such production.

It is, of course, difficult for DOD to determine precisely the direct labor requirements for these purposes. We do have a current planning model, however, which is used by our mobilization staff to estimate the kind of skills required in defense-related industries. By working with the Department of Labor, we have identified seventy-two categories of skills that directly affect our defense efforts. DOD is currently coordinating efforts with the Department of Labor and the Department of Education to gain a better understanding of issues related to supply and demand in these seventy-two skill areas. Again, the National Center may be able to make useful contributions to this dialogue.

Finally, most of the money for DOD research on training is allocated to and controlled by three military research laboratories charged with the responsibilities for personnel and human research. They are (1) the Army Research Institute in Alexandria, V.. ginia; (2) the Naval Personnel Research and Development Center in San Diego, California; and (3) the Air Force Human Resources Laboratory in San Antonio, Texas. Each of these labs has its own agenda, but, in general, they are interested in the leading edge of technology and its application to training and education. Thus they are working with simulators, computer-assisted and computer-managed instruction, with videodisc systems and interactive systems.

These research laboratories are also involved with testing, and are currently looking for methods to link military entrance standards to eventual performance on the job. Since our current standards are validated against performance in training, this research will carry the military one step further than the current methodology, and probably one step further than most other organizations in our society. There certainly should be some common interests between the military R&D organizations and the National Center in these areas.

The final possibility I offer today for expanding our partnership deals with an area brought to my attention by Dr. Izaak Wirszup, who is a professor of mathematics at the University of Chicago. Dr. Wirszup is probably America's leading expert on education in the Soviet Union. He recently published his findings about what he calls a determined education mobilization in the Soviet Union that began in 1966. The aim of this educational mobilization was to provide each Soviet student with a strong background in science and math. According to Dr. Wirszup, it has succeeded amazingly well. Dr. Wirszup also told me that the Soviets have done some outstanding work on the psychology of learning. He said that the USSR has five hundred research psychologists at work in this area in its Institute of Educational Psychology. I believe it would be well worth the while of the National Center to review the Soviet work in this field and to determine its applicability to technical education in the United States.

QUESTIONS AND ANSWERS

Alvin Tucker

QUESTION: Does or could the military use civilian institutions for its specialized skill training?

Yes we could, given some conditions that we are looking at now. One is the content of the training. We would probably need to control the content of the training in the technical skills so that it meets our needs and not the school's needs. We would also not go for a strict two-year program. We would need to control the length of the program. We would certainly not want to finance two years of training for everybody, just because that is the way the schools do it. We would not take in people at higher pay grades, such as corporal or sergeant, that may require supervisory skills not taught in technical schools. With those caveats, the military services are talking with civilian institutions now to determine just what possibilities exist. We also are beginning to discuss these options with the Department of Education and the vocational education people. We are not sure what the likely size of the market might be. We are currently conducting research to determine whether people who made an earlier decision not to join the military will reconsider that decision at a later point when they have completed training at a civilian institution.

QUESTION: Would you say something more about the findings of a study that stated that members of the military scored better on tests than civilians?

This particular study began over two years ago, when we discovered that our enlistment test was incorrectly normed. We were enlisting a large number of people who did not meet our entry standards and who were not qualified. As a result, we ask, "How representative in terms of educational attainment and aptitude levels are the people who are entering military service?" Nobody knew, because our test norms were based on the population of about 12 million men under arms as of December 1944. The new survey developed a profile of the current youth population, based on their test scores on the Armed Services Vocational Aptitude Battery (ASVAB). Those scores were then compared to the test scores of the people we are now getting into the Armed Forces.

This survey showed several things I think will be of interest to you. One was that the scores of contemporary youth were quite similar to those of our World War II reference groups. In other words, about the same proportion of the current youth population scored within the average range, and the same percentages scored above and below average. This means they have approximately the same levels of verbal and mathematical knowledge as the World War II population.

Second, the study showed that military recruits scored higher on the ASVAB than did the civilian youth population. This was especially true for minority enlistees. In addition, it showed that the military services were recruiting proportionately more individuals with high school diplomas than were found among contemporary young people, and among whites, blacks, and Hispanics.

The reason the military gets better people is because we have fairly high standards for enlistment. Indeed, the military services currently reject, for educational and aptitudinal reasons, about 22 percent of the people who want to join. So, the message I want to leave you is that the military is not the employer of last resort, as many people think it is. We are only taking people who meet our standards. Eighty percent have high school diplomas. Many also have high aptitudes in particular areas and join to get technical training. I believe that is why the test scores showed that we are getting better-than-average recruits.

QUESTION: Do you or could you use self-paced training materials in the military?

We have used self-paced training materials. We are using them now in some areas. Overall, I do not think we are very happy with them. The reasons are that people have learned to get around the system, perhaps too readily, in some cases. People who are very astute can absorb the material very quickly, pass a test, and then forget it very quickly. There is not much reinforcement in that process. There is a great concern about quality control in self-paced instruction. In many cases the military is backing away from it. I do not know of any new programs of self-paced instruction. There are some that we have to keep for various reasons, but there is not much enthusiasm for them.

QUESTION: Do you have different standards for female recruits than for male recruits?

Enlistment standards in the Army and Air Force are the same for both men and women. In the case of the Navy and Marine Corps, women must be high school graduates and must score higher on the enlistment test than male applicants. This is because the number of female applicants with high school diplomas greatly exceed Navy and Marine Corps requirements and vacancies. This also reduces the number who would otherwise fail to adapt to military life. For example, in the Marine Corps, female high school graduates have a 50 percent likelihood of completing three years of service; female nongraduates, on the other hand, have less than a 10 percent chance of success. Attrition statistics for the Navy are similar to those of the Marine Corps. Thus, because of different attrition behavior evidenced by women with various levels of education, different standards are applied.

QUESTION: Would you share with us the current status and future of the apprenticeship program started in DOD in cooperation with the U.S. Department of Labor?

The apprenticeship program is a very good idea, but it has not received a lot of interest. We do not have a lot of people starting the program who also finish it. This apprenticeship program allows military personnel who complete two thousand to eight thousand hours of training in a military skill (depending on what skill it is) to get a certificate from the Department of Labor as journeymen in various trade areas such as welding. The presumption is that they could use that certificate to get a job in civilian society, when they leave the service.

I think the reason for the program's lack of popularity is that it requires the servicemembers to do all the recordkeeping. They must maintain a job book to show the type and quality of work experience to qualify for the certificate. Many people are just not that conscientious and cannot keep up with the paperwork for three or four years. Also, since the certificate does not guarantee employment, there is not enough incentive to motivate people to finish the program.

QUESTION: Creating the community college in the Air Force is certainly a step in the direction of attaching college credit to certain of these skills. Is that going to continue with the other branches of the military? What is your evaluation of this program?

Yes, it will continue. We have some other programs that work in a similar fashion. The American Council on Education publishes a manual that advises universities and colleges of how much credit they might consider giving for military training. The manual is used extensively throughout the educational establishment. We have a program under the Servicemen's Opportunity College in which participating schools give credit for certain courses taken. I see more of that kind of program arising because those in the military are, on the average, more educated than those in civilian society. For example, if one is an officer and wants to attain the rank of major, obtaining a master's degree is important, because there are not many people getting promoted to major who do not have a master's degree. In order for enlisted personnel to advance in rank, many of them are pursuing two-year associate degrees. This trend is going to continue.

QUESTION: Recent television commercials to persuade young people to join the military imply that they can be unskilled when they enlist, can gain skills, and can use them after their enlistment period. What is the magnitude of military training that can be used in civilian life?

DOD publishes the *Occupational Skills Manual* with the Department of Labor. Approximately 90 percent of the jobs in the military overlap into civilian life.

QUESTION: What is the military involvement and commitment to training using videodisc technology?

In my presentation I used the word experimentation. I used that advisedly, because *experimentation* is what we are doing. We do not yet have videodisc technology in any training courses that I know of. We have a number of educators around the country who are also experimenting with it. Two organizations that just came around to see me recently are trying to crack the military market. One is called Video University of Mississippi. The other is called Core Data, which links up a videodisc player and a computer base to use it for education. This reminds me of something that Dr. Wirszup told me about some Soviet and Eastern Bloc educational psychologists who came to visit some of our training institutions. The soviets concluded that the devices were magnificent but that the content was very poor; that it, it was poor in relation to what they knew about the psychology of learning.

QUESTION: How many military training programs are over two years in length?

Very few. Most are shorter than two years.

QUESTION: You said that skills learned in seventy-two military occupations have applicability in the civilian work force. On the other hand, if a recruit has had a two-year degree in electronics from a community college, would that be the same as training from a military school?

Our electronics courses are very equipment-specific. We do not teach a lot of theory and mathematics. We do require for some courses that personnel come to us prepared. For example, a person may need an algebra course or something similar for enlistment in certain specialties.

QUESTION: We frequently see military bases, community colleges, technical institutes, National Guard Armories, and area vocational schools in close proximity to each other. To what extent is the military now contracting with some of these vocational education enterprises for custom training? Is that a possibility to be expanded? How should the vocational education establishment modify its behavior to make its services more attractive? Granted that much of your training

is equipment-specific, but are there not certain fundamentals in mechanics, electronics, and many other areas where those specific skills could be contracted to the vocational education establishment and could thus enable the dual use of equipment?

First, what are we doing now? We are using these vocational schools to some extent. Mainly we are using them near the job site (after trainees have gone through a military school) where they are supposed to be getting on-the-job training. We do it this way when the supervisor does not have time or does not know how to teach certain skills. One such case that comes to mind involved Central Texas College outside of Fort Hood, Texas. Retired military people were hired to teach very specific kinds of training—for example, the M-60 tank engine repair course. This type of training is certainly expandable. The way for vocational educators to get involved is to go to the military base. We are not a monolith organization; we are very decentralized, and most of the decisions are made at the eighty locations where the training is done. The people in charge have training needs. That is where you start.

The other question is, "Can vocational programs help prior to military training by providing certain common competencies?" If you are willing to adapt, I think so. But, the Department of Defense, at this point in time, is not prepared to make the offer, because it is not yet prepared to state what it wants and what it is willing to do. I think there is room for this kind of program. The idea is very appealing and it makes a lot of sense on the surface, but I can assure you there would be a great deal of work involved in getting it up and running. A lot of selling would have to be done within DOD and within the military services to get this idea implemented effectively.

QUESTION: Has the Department of Defense done any analysis of the cost of its training and what would it cost to have training done in the civilian sector?

At certain times, this has been calculated. There are certain kinds of training for which we will never contract. We will never contract for infantry training, for instance. We will not contract for military basic training because that is a military socialization process. There are some kinds of training for which we do contract. We contract for some types of flight instruction. We have a very refined process for making cost comparisons between in-house and contract performance.

The office of management and budget tells us how we are supposed to go about making this analysis and study of costs. Essentially, here is how it works. The in-house organization that is now doing the work, military or civilian, would put together its own proposal based on how it intends to do the work. This could include a number of efficiencies related to the way it is now doing the job. The organization may, for instance, say that it could do the work with half the people, and that has occurred in some cases. Then we would invite bids from interested organizations to compete against the government. If there were approximately a 10 percent difference in the bids, we would contract. That makes a very complicated, gut-wrenching system sound quite simple. But there are studies like that currently underway.

QUESTION: You mentioned that you have about forty-seven thousand military and seven thousand civilian personnel involved in the training enterprise. What would you say would be the three most important areas that need improvement in terms of upgrading the skills of your trainers?

The biggest potential improvement is one that is being put together now by the Army, called the Regimental System. It is an attempt to put stability back into military units. Some of you may not be familiar with the military personnel system, but it moves people around at a rapid rate, and the turnover in some cases is unbelievable; I don't know how one would run an operation

that lost 20 or 30 percent of its people a month. That is not unusual in some military units. The Army Chief of Staff, General E.C. Meyer, wants to put stability back in these units by keeping the people there long enough to learn their jobs. He wants to increase the commitment of soldiers to their unit. We call it unit cohesiveness. This is the thing that the Army is trying to bring back. It is probably the first and most important improvement in training, and it has nothing to do with what the trainers needed.

What the trainers need is more time. With their duties and workload levels, they cannot do the training. In some cases, they need to be taught how to do the training. Also, a lot of emphasis is going into leadership training. We are also trying to teach trainers more about teaching with job training aids. Finally, we are bringing trainers back to advanced training courses later on in their careers, but we have not done enough of that.

QUESTION: Do you have areas of skill training in the military that cannot be fulfilled?

Yes. Our requirements for linguists have skyrocketed. We are far behind in developing enough linguists with sufficient skill. Having been one myself, I am interested in this most vital need. We have, amazingly enough, people standing in line for most of the jobs that have very high civilian transferability. So a recruiter never has any trouble filling electronic maintenance jobs. There are smart people begging to get in, and the quota is met in the first quarter of the year. It is harder to get people who want to join the infantry or the artillery, so, we give bonuses for that. If someone has a son who wants to get in the infantry, the son can get a pretty good deal.

We also have some other skill shortages, but the biggest shortages are in career people at higher grade levels with the level of experience that we need. We have had, as you may know, about a 25 percent pay raise for military personnel over the past year. That has stemmed from the outflow of people considerably. But before then we were losing a lot of experienced people, and we are still hurting from it. What we need are people at the middle management and supervisory levels; namely, petty officers and sergeants.

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